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tolic function were recorded.All had confirmed normal short axis systolic contractility. Diastolic function was studied by means of tissue doppler.
Results: Echocardiographic indices were predictably abnormal, and plasma MMP-9 & TIMP-1 were elevated in HT. Within the hypertensive cohort, LV mass and septal thickness correlated positively with TIMP-1 (Ranked Pearson's correlation r=0.312,p=0.035; r=0.359,p=0.013 respectively). There was a negative correlation between e' and TIMP-1 (r= -0.296,p=0.037).
Conclusion: We have defined a novel relationship between elevated TIMP-1, increased LV mass and impaired diastolic relaxation. This suggests a role for this metalloproteinase inhibitor in the patho-physiology of hypertensive heart disease potentially related to diastolic heart failure in HT.

Differences between controls and hypertensives

	Controls (n=24)	Hypertensives (n=52)	p-value
SBP	127(16)	154(22)	<0.0001
DBP	79(10)	90(13)	<0.001
Cholesterol (mmol/l)	5.7 (5.1-6.1)	5.2 (4.8-6.1)	0.33
LV mass (gm)	182 (68)	231 (85)	0.009
IVRT (msec)	110(99-130)	122(106-143	0.39
E-wave(cm/sec)	0.73(0.15)	0.81(0.02)	0.03
A-wave (cm/sec)	0.67(0.03)	0.83(0.02)	<0.001
e' wave(cm/sec)	0.1(0.078-0.12)	0.08(0.07-0.1)	0.009
e'/a'	7.4(2.2)	9.2(2.5)	0.002
MMP-9	42(35-103)	70(45-135)	0.029
TIMP-1	290(230-350)	380(273-580)	0.005

1142-187 **Three-Dimensional Echocardiographic and Magnetic Resonance Assessment of the Effect of Telmisartan Compared With Carvedilol on Left Ventricular Mass: A Multicenter, Randomized, Controlled Study**

Domenico Galzerano, Luca Del Viscovo, Paolo Tammaro, Carlo Tedeschi, Roberto Breglio, Diana Lama, Antonio Cerciello, Bernardino Tuccillo, Paolo Capogrosso, San Gennaro Hospital, Naples, Italy

Background: Meta-analyses examining hypertensive left ventricular hypertrophy (LVH) suggest that the observed regression of LVH is related not only to blood pressure control, but also to drug-related effects.
Objective: To elucidate the efficacy and the effects on left ventricular mass of different classes of drugs, on the hypothesis that blockade of angiotensin II type 1 (AT_1) receptors by the AT_1 receptor antagonist telmisartan (TEL) would reduce left ventricular mass assessed by three-dimensional echocardiography (3DE) and magnetic resonance imaging (MRI) more than conventional treatment with the beta-blocker carvedilol (CARV).
Design and Methods: This study randomized 80 patients with mild-to-moderate hypertension plus LVH and optimal acoustic window to receive either TEL 80 mg od or CARV 25 mg od for 40 weeks. Ten patients withdrew from the study because diastolic blood pressure remained above 90 mmHg. At baseline and after the 40-week treatment, blood tests, 3DE and 24-h ABPM were performed. 28 patients underwent MRI.
RESULTS: Systolic and diastolic blood pressure reductions were similar in both treatment groups(before and after TEL: 160±9.5and 97.8±5.8 vs 128±6.5/77.3±5.4 mmHg; CARV: 160±10.7 and 95.4±4.9 vs 128.4±4.9 and 78.3±4.8 mmHg). Both TEL (P<0.001) and CARV (P<0.01) progressively reduced left ventricular mass index by 22 and 12 g/m^2 (15% and 9%), respectively, at week 40 (P=0.02). A higher percentage of normalized left ventricular mass was achieved in the TEL group (44% vs 30%).
CONCLUSIONS: TEL produced a greater reduction of left ventricular mass than CARV, suggesting that AT_1 receptor blockade provides an important mechanism, beyond that of lowering blood pressure, in the regression of left ventricular mass in hypertensive patients.

1142-188 **Pulse Wave Velocity Measured by Complior Method in a Brazilian Young Population Followed-Up for a 13 Year-Period: The Rio de Janeiro Study**

Oswaldo Pizzi, Roberto Pozzan, Andréa Brandão, Maria Eliane Magalhães, Elizabete Freitas, Ayrton Brandão, State University of Rio de Janeiro, Rio de Janeiro, Brazil, Medical School of Petrópolis, Petrópolis, Brazil

Background: Vascular injury in youth associated to early blood pressure (BP) alterations and other risk factors is not well known. To establish their possible association, pulse wave velocity (PWV), clinical, metabolic and haemodynamic variables were measured in young adults stratified by their blood pressure percentile obtained 13 years earlier.
Methods: 385 young subjects (201M) were evaluated at their schools in 1987-88 (12.74±1.65 y). BP was measured 3 times, and the third measure was used for analysis. Body mass index (BMI) was obtained. In 1997-2000 (21,91±2,12 y), they were examined at the hospital. BP, BMI, waist and hip were obtained and cholesterol (C), tryglicerides, LDL-C, HDL-C, creatinine, plasma glucose and insulin were measured after a 12h fasting. A sample of 60 young adults underwent PWV measurement by Complior method and was stratified according to their former (at school) BP percentile: Group 1 $\leq 50^{th}$ percentile (n=25, 11 M) and Group 2 $\geq 95^{th}$ percentile (n=35, 19 M).
Results: 1) Group 1 had higher age (p<.05) and all comparisons were adjusted for age. 2) Group 2 had higher weight (p<.05), systolic BP (SBP) (p<.03), diastolic BP (DBP) (p<.02), mean BP (MBP) (p<.02), PWV (p<.03), fasting glucose (p<.03) and lower HDL-C (p<.03). 3) PWV correlated positively and significantly with SBP (r=0.333, p<.02), MBP (r=0.303, p<.02) and heart rate (HR) (r=0.284, p<.03) obtained 13 years earlier. 4) PWV showed significant correlations with the following current variables: weight (r=0.403, p<.01), height (r=0.301, p<.02), waist circumference (r=0.347, p<0.01), waist/hip ratio (r=0.328, p=0.01), SBP (r=0.444, p<.01), DBP (r=0.318, p<.02), pulse pressure (PP) (r=0.274, p<.04), MBP (r=0.424, p<.01) and serum creatinin (r=0.400, p<.01). 5) In covariance analysis, when PWV was adjusted for current SBP, DBP, MBP and PP, no significant differences were observed between the groups, although group 2 showed higher means in all comparisons.
Conclusion: High BP percentile obtained in adolescence was associated with higher BP and PWV 13 years later. These results suggest that early vascular changes could be identified in young and emphasize that primary prevention must begin early in life.

ORAL CONTRIBUTIONS

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Novel Risk Factors and Cardiovascular Events

Tuesday, March 09, 2004, 2:00 p.m.-3:30 p.m.
Morial Convention Center, Room 210

2:00 p.m.

847-1 **Constellation of Risk Variables of Metabolic Syndrome at Low Levels in Childhood Is Beneficially Associated With Adulthood Cardiovascular Risk: The Bogalusa Heart Study**

Wei Chen, Sathanur R. Srinivasan, Shengxu Li, Jihua Xu, Gerald S. Berenson, Tulane University Health Sciences Center, New Orleans, LA

Background: Most epidemiologic studies have focused on the association between the adverse levels of risk variables of metabolic syndrome and the risk of cardiovascular (CV) disease. However, information is lacking on the relation of metabolic syndrome risk variables clustering at favorable levels in childhood and CV disease risk in adulthood.
Methods: The study cohort (n=1,474) was examined in childhood (4-17 years) and again in adulthood (18-41 years), with an average follow-up period of 15.8 years in a black-white community. The childhood criterion metabolic syndrome variables included the lowest quartiles (specific for age, race, sex and study year) of body mass index, homeostasis model assessment of insulin resistance, systolic blood pressure and total cholesterol/high-density lipoprotein cholesterol ratio. The measures of CV risk in adulthood included prevalence of metabolic syndrome, parental histories of CV disease, and carotid artery intima-media thickness (IMT) measured in a subsample (n=138).
Results: In childhood, 9% of the cohort displayed clustering of 3 or 4 criterion risk variables at the bottom quartiles, which was significantly higher than expected by chance alone (P<0.01). These children, compared with those without any risk variables at the bottom quartiles, had a lower prevalence of metabolic syndrome in adulthood (2.3% vs 20.0%, P<0.001). In addition to lower odds for having metabolic syndrome in adulthood (11-fold, P<0.001), they also displayed lower odds for having parental histories of CHD (1.9-fold, P=0.039), hypertension (1.5-fold, P=0.045) and type 2 diabetes (1.6-fold, P=0.079). Mean values of carotid IMT in adulthood decreased with an increasing number of risk variables clustering at the bottom quartiles in childhood (P for trend=0.013).
Conclusion: The constellation of metabolic syndrome variables at low levels in childhood is associated with lower measures of CV risk in adulthood. The beneficial consequence of such a lifetime low-risk profile in youth reinforces the importance of CV disease health promotion and life style modification in early life.

2:15 p.m.

847-2 **Combination Aspirin and Statin Therapy Markedly Reduces C-Reactive Protein Levels in a High-Risk Population Without Coronary Disease**

Marlene S. Williams, Lewis C. Becker, Taryn F. Moy, Lisa R. Yanek, Nauder Faraday, Diane M. Becker, Johns Hopkins Medical Institution, Baltimore, MD

Background: There remains controversy about the anti-inflammatory effects of both low dose aspirin (ASA) (81mg) therapy and statins and little is known of their combined effect. This study was designed to determine the extent to which chronic low dose ASA therapy, statin therapy, and combined statin and ASA therapy have an anti-inflammatory effect as determined by plasma levels of high sensitivity C-reactive protein (hs-CRP) in a high-risk population without coronary artery disease (CAD). Methods: We examined 699 asymptomatic siblings (SIBS) of probands with documented CAD < 60 years of age. SIBS were 49.0 ± 8 years of age, 59% African American, and 41% male and were not using regular nonsteroidal or other anti-inflammatory agents. Plasma levels of hs-CRP were measured by ELISA. Three separate multivariate regression models were used, one each for the use of ASA alone, statins alone, and combination therapy, each controlling for age, sex, race, systolic blood pressure, LDL-cholesterol, smoking, diabetes, and body mass index. Each model contained only people using the specific therapy of interest, plus nonusers. Results: Lower levels of hs-CRP were observed in individuals using ASA alone (N=23) hs-CRP= 2.1± 1.8 μg/ml, statins alone(N=56) hs-CRP=2.8± 2.6 μg/ml, and the combination of both statins and ASA(N=13) hs-CRP=1.4± 1.4 μg/ml, in comparison with nonusers (N=607) hs-CRP=3.1± 3.0 μg/ml. Combined therapy was the strongest independent predictor of lower hs-CRP levels (p=0.0008). For people using statins alone, the multivariate adjusted significance was lower, (p=0.007), and for people using